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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/027,667	12/21/2001	Mario Elmen Tremblay	8828	1150

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THE PROCTER & GAMBLE COMPANY
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EXAMINER

WILKINS III, HARRY D

ART UNIT	PAPER NUMBER
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1742

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

8

Office Action Summary	Application No. 10/027,667	Applicant(s) TREMBLAY ET AL.	
	Examiner Harry D. Wilkins, III	Art Unit 1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29,31,32,41 and 94 is/are pending in the application.
- 4a) Of the above claim(s) 94 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29,31,32 and 41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8 February 2007 has been entered.

Status

1. The rejections under 35 USC 112, 2nd paragraph have been withdrawn in view of Applicant's amendments correcting the noted deficiencies.

Claim Rejections - 35 USC § 112

2. Claims 1-29, 31, 32 and 41 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The application as filed fails to support the limitation that the effluent solution contained less than 2 ppm chloride/halide ions. In fact, the specification as filed is totally silent with respect to final chloride/halide ion concentration. The only final concentration give for the effluent was the concentration of oxidants, which were not the chloride/halide ions.

Art Unit: 1742

3. Additionally, the application as filed fails to support the limitation that the inlet port and outlet port are configured to operate with specific concentrations. Applicant has failed to disclose any structure associated with the inlet port and outlet port which provides such configurations.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 3, 22-24, 29, 31 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Kanekuni et al (US 5,954,939).

Kanekuni et al anticipate the invention as claimed. Kanekuni et al teach (see figures 1, 4-9, 11(a) and 11(b), Test 8 (cols. 23-24) and table 1 (col. 25)) an apparatus for electrolyzing an electrolytic solution comprising at least one non-barrier electrolytic cell having an anode, a cathode and a passage connecting the anode and cathode adjacent to the anode, the passage having a distance between the anode and cathode of less than 0.60 mm (see col. 23, lines 34-36), an inlet port in fluid communication with the passage and configured to receive a flow of electrolytic solution, an outlet port in fluid communication with the passage configured to provide an exit for the flow of electrolytic solution having been electrolyzed and a direct current power supply providing electrical current between the anode and cathode, whereby the electrical current electrolyzes the electrolytic solution. Further, Kanekuni et al teach (see col. 1,

Art Unit: 1742

lines 59-66) that the apparatus included a water source from a natural source, such as well water or industrial water.

With respect to the claimed concentrations of the electrolytic solution, the apparatus of Kanekuni et al would have been considered capable of operating in the claimed fashion. See MPEP 2114 and 2115. Apparatus claims are defined by the recited structural limitations, not by the article/material placed within the structure.

Regarding claim 3, the apparatus of Kanekuni et al included a fluid movement mechanism for moving water into and out of the cell. Such mechanism was supplied by the various well water apparatus which provides a pressure behind the water source.

Regarding claims 22 and 23, it would have been obvious to one of ordinary skill in the art to have added a water sensor for automatically turning the electrolytic cell on and off because such automatic switch is an obvious engineering design improvement that comes from efficiency and economic design considerations (i.e.-it is within routine skill in the art to add an automatic on/off control to prevent wasting power when water is not available and to remove any manual activity in the process).

Regarding claim 24, the apparatus of Kanekuni et al included an ac-dc converter (see figure 8).

Regarding claim 29, Kanekuni et al teach (see col. 13) utilizing the device in as a under-sink water purification device (sinks) or a counter-top water purification device (for sterilizing).

Regarding claim 31, the apparatus of Kanekuni et al provided sterilization of the water.

Regarding claim 32, the anode active surface area of Kanekuni et al had a surface area of 30 cm² (see col. 23, lines 39-41).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanekuni et al (US 5,954,939).

Regarding claim 2, although Kanekuni et al fail to teach utilizing a housing containing both the electrolytic cell and the power supply (see figure 8), it would have been obvious to one of ordinary skill in the art to have added a housing around the power supply and electrolytic cell to allow the water sterilization device to be made portable as a single unit.

Regarding claim 4, it would have been obvious to one of ordinary skill in the art to have recirculated the electrolytic solution because recycling is an obvious engineering design improvement that comes from efficiency and economic design considerations (i.e.-it is within routine skill in the art to recycle fluid through a "reactor" to increase yield). Changing economic considerations do not make obvious expedient into unobvious improvement. *Ex parte Fuller*, 172 USPQ 317. In this instance, it would have been obvious to have recycled the electrolyzed solution to allow for an additional increase in bactericidal chemicals in the solution.

Art Unit: 1742

8. Claims 5-21 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanekuni et al (US 5,954,939) as applied to claims 1, 3, 22-24, 29, 31 and 32 above, and further in view of Weakly et al (US 2002/0157966).

Kanekuni et al do not teach a filter such as activated carbon or resin which can filter out harmless materials.

Weakly et al teach (see paragraphs 35 and 49) a specific filter such as activated carbon or resin which can filter out arsenic.

Therefore, it would have been obvious to one of ordinary skill in the art to have modified the apparatus of Kanekuni et al to include the filter material of Weakly et al because Weakly et al teach that the filter removes arsenic from the treated water which would have further minimized contaminants for the end user of the treated water of the process of Kanekuni et al.

It should be noted that the specific rate or degree of filtration is a method limitation which does nothing to further define the structure in apparatus claims. The apparatus must merely be capable of operating at the specific operating conditions which appears to be the case with the apparatus of Weakly et al. The specific filtration properties would have been considered a result effective variable by one having ordinary skill in the art. As such, one having ordinary skill would have routinely optimized the pressure of the chamber to obtain the purification attendant therewith. *In re Boesch* and *In re Aller*.

Art Unit: 1742

9. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanekuni et al (US 5,954,939) as applied to claims 1, 3, 22-24, 29, 31 and 32 above, and further in view of Beer (US 3,632,498).

The teachings of Kanekuni et al are described above.

However, Kanekuni et al do not teach that the electrode is a foil electrode comprising a group VIII metal.

Beer teaches (see abstract and claims 1 and 3) a composite electrode including a conductive base with a foil of an active material such as palladium, platinum, rhodium, iridium, ruthenium or osmium (group VIII metals) on the surface. Beer teaches that this electrode is useful in processes including purification of water and has a long life, low overvoltage and catalytic properties.

Therefore, it would have been obvious to one of ordinary skill in the art to have used the composite electrode of Beer for the anode of Kanekuni et al because the electrode of Beer is useful in water purification and has a long life, low overvoltage and catalytic properties.

10. Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanekuni et al (US 5,954,939) as applied to claims 1, 3, 22-24, 29, 31 and 32 above, and further in view of Graham et al (US 5,937,641).

The teachings of Kanekuni et al are described above.

However, Kanekuni et al do not teach that the electrode is a porous metallic anode.

Graham et al teach (see col. 8, lines 1-23) a porous metallic foam useful in a catalytic converter. The porous foam is capable of withstanding high temperatures and vibrations.

Therefore, it would have been obvious to one of ordinary skill in the art to have used the porous material of Graham et al for the anode of Kanekuni et al because the porous material of Graham et al resists vibrations and also provides a high surface contact area for electrolytic reaction.

11. Claims 1-4, 22, 23, 29, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kelley (US 6,306,281) in view of Spence (US 4,414,070).

Kelley teaches (see figure and abstract) an apparatus for electrolyzing an electrolytic solution including a non-membrane (barrier) cell including an anode and cathode defining a passage formed there between, an inlet port, an outlet port and a direct current supply (not shown in figure, see col. 2, lines 65-67). Kelley further teaches (see examples) providing a water source comprising salts to be processed.

With respect to the claim limitations of claim 1, requiring an "electrolytic solution comprising natural water and residual salts", all water present on the planet is considered natural water. As such, the water fed to the cell of Kelley was natural water, such as industrial process water.

With respect to the claimed concentrations of the electrolytic solution, the apparatus of Kelley would have been considered capable of operating in the claimed fashion. See MPEP 2114 and 2115. Apparatus claims are defined by the recited structural limitations, not by the article/material placed within the structure.

Thus, Kelley does not teach that the passage between the anode and cathode is less than about 0.6 mm in size.

However, Spence teaches (see col. 1, lines 24-29) that the efficiency of electrolytic cells is dependent upon the anode-cathode distance, and that as the distance decreases the efficiency increases.

Therefore, it would have been within the expected skill of a routineer in the art to have modified the apparatus of Kelley to use as small an anode-cathode gap as possible, such as less than 0.6 mm as claimed because Spence teaches that decreased anode-cathode gap improves efficiency.

Regarding claim 2 and the limitation that the apparatus "achieves a Productivity Index of at least 300 during electrolyzation of said solution", this limitation is not further limiting on the apparatus claim because the limitation deals with the manner or method of use of the claimed apparatus. It has been well settled that the manner or method of use of an apparatus cannot be relied upon to further limit claims to the apparatus itself. See *In re Casey*, 152 USPQ 235, and MPEP 2114. The apparatus of Kelley is fully capable of operating in the claimed fashion. The apparatus of Kelley included a body providing containment for the electrolytic cell.

Regarding claim 3, the apparatus further includes a pump for moving electrolytic solution (figure 1).

Regarding claims 4, it would have been obvious to one of ordinary skill in the art to have recirculated the electrolytic solution because recycling is an obvious engineering design improvement that comes from efficiency and economic design

Art Unit: 1742

considerations (i.e.-it is within routine skill in the art to recycle fluid through a "reactor" to increase yield). Changing economic considerations do not make obvious expedient into unobvious improvement. *Ex parte Fuller*, 172 USPQ 317.

Regarding claims 22 and 23, it would have been obvious to one of ordinary skill in the art to have added a water sensor for automatically turning the electrolytic cell on and off because such automatic switch is an obvious engineering design improvement that comes from efficiency and economic design considerations (i.e.-it is within routine skill in the art to add an automatic on/off control to prevent wasting power when water is not available and to remove any manual activity in the process).

Regarding claim 29, the device of Kelley would be considered an "under-sink" water purification device since it would have been installed within a water conduit between a source and a final usage station.

Regarding claim 31, the device of Kelley created oxidants within the electrolyte solution, such oxidants being capable of killing microorganisms present within the solution. Thus, the device of Kelley was capable of operating in the claimed fashion.

Regarding claim 32, Kelley does not teach the anode surface area is less than 30cm². However, changes in size absent a showing of unexpected results have been held to be mere routine experimentation and within the skill of a routineer in the art. See MPEP 2144.04.IV.A. Therefore, it would have been obvious to one of ordinary skill in the art to have made the electrolytic cell of Kelley small enough to have a anode surface area of less than 30 cm² as claimed in order to adjust the total output of the electrolytic cell to the desired amount.

Art Unit: 1742

12. Claims 5-21 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kelley (US 6,306,281) in view of Spence (US 4,414,070) as applied to claims 1-4, 22-23, 29, 31 and 32 above, and further in view of Weakly et al (US 2002/0157966).

Kelley does not teach a filter such as activated carbon or resin which can filter out harmless materials.

Weakly et al teach (see paragraphs 35 and 49) a specific filter such as activated carbon or resin which can filter out arsenic.

Therefore, it would have been obvious to one of ordinary skill in the art to have modified the apparatus of Kelley to include the filter material of Weakly et al because Weakly et al teach that the filter removes arsenic from the treated water which would have further minimized contaminants for the end user of the treated water of the process of Kelley.

It should be noted that the specific rate or degree of filtration is a method limitation which does nothing to further define the structure in apparatus claims. The apparatus must merely be capable of operating at the specific operating conditions which appears to be the case with the apparatus of Weakly et al. The specific filtration properties would have been considered a result effective variable by one having ordinary skill in the art. As such, one having ordinary skill would have routinely optimized the pressure of the chamber to obtain the purification attendant therewith. *In re Boesch* and *In re Aller*.

Art Unit: 1742

13. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kelley (US 6,306,281) in view of Spence (US 4,414,070) as applied to claims 1-4, 22-23, 29, 31 and 32 above, and further in view of Beer (US 3,632,498).

The teachings of Kelley are described above.

However, Kelley does not teach that the electrode is a foil electrode comprising a group VIII metal.

Beer teaches (see abstract and claims 1 and 3) a composite electrode including a conductive base with a foil of an active material such as palladium, platinum, rhodium, iridium, ruthenium or osmium (group VIII metals) on the surface. Beer teaches that this electrode is useful in processes including purification of water and has a long life, low overvoltage and catalytic properties.

Therefore, it would have been obvious to one of ordinary skill in the art to have used the composite electrode of Beer for the anode of Kelley because the electrode of Beer is useful in water purification and has a long life, low overvoltage and catalytic properties.

14. Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kelley (US 6,306,281) in view of Spence (US 4,414,070) as applied to claims 1-4, 22-23, 29, 31 and 32 above, and further in view of Graham et al (US 5,937,641).

The teachings of Kelley are described above.

However, Kelley does not teach that the electrode is a porous metallic anode.

Graham et al teach (see col. 8, lines 1-23) a porous metallic foam useful in a catalytic converter. The porous foam is capable of withstanding high temperatures and vibrations.

Therefore, it would have been obvious to one of ordinary skill in the art to have used the porous material of Graham et al for the anode of Kelley because the porous material of Graham et al resists vibrations and also provides a high surface contact area for electrolytic reaction.

Response to Arguments

15. Applicant's arguments filed 8 February 2007 have been fully considered but they are not persuasive. Applicant has argued that:

- a. The apparatus of Kelley is not "configured to allow influent to enter the inlet at about 10-200 ppm and to allow effluent to exit the outlet at about 2 ppm or less".

In response, Applicant has failed to define any structure which is required by this configuration language. Thus, in absence of any evidence of different structural limitations, Applicant's argument is not persuasive as per MPEP 2114 and 2115.

- b. Kelley does not teach having a total anode surface area below 30 cm².

In response, Applicant is again reminded that changes in scale have been held to be obvious in the absence of convincing evidence that the change in scale provides an unexpected result. Applicant has failed to provide evidence that the claimed anode surface area produces any result different from that of Kelley.

Art Unit: 1742

- c. Kelley does not generate mixed oxidants from aqueous solutions containing naturally present salts.

In response, the claimed limitation is related to the manner of operation of the claimed structure and provides no structural difference over the disclosure of Kelley. Further, NaCl is a naturally occurring salt, and all water present on the planet is considered to be naturally occurring.

- d. The apparatus of Kanekuni et al is not "configured to allow influent to enter the inlet at about 10-200 ppm and to allow effluent to exit the outlet at about 2 ppm or less".

In response, Applicant has failed to define any structure which is required by this configuration language. Thus, in absence of any evidence of different structural limitations, Applicant's argument is not persuasive as per MPEP 2114 and 2115.

- e. Kanekuni et al do not teach having a total anode surface area below 30 cm².

In response, Applicant's attention is directed to col. 23, lines 39-41 where Kanekuni et al teach using an electrode surface area of 0.14 dm² (14 cm²).

- f. Kanekuni et al do not teach having a gap smaller than 0.6 mm.


In response, Applicant's attention is directed to col. 23, lines 34-36 where Kanekuni et al teach using an electrode gap of 0.5 mm.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D. Wilkins, III whose telephone number is 571-272-1251. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V. King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Harry D Wilkins, III
Primary Examiner
Art Unit 1742

hdw